User Manual

Solar Walk™

3D Solar System Model
for iPhone/iPod Touch/iPad/OS X

June 2013, ver. 2.2

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1. Introduction

Solar Walk™ is a virtual three - dimensional model of the Solar System for iPhone/iPad/iPod Touch and OS X designed to help kids and adults watch the accurate position of rotating planets from any angle for any given date and time, learn the structure of the Solar System, and get up-to-date information on solar objects.
With Solar Walk™ users can investigate celestial objects and our Solar System. The planets have accurate lightness and darkness against the sun, calculated distances towards each other, and sizes similar to real.

Solar Walk™ features:

Galaxy view - expanded view of the Solar System and the Milky Way galaxy.
Explanatory movie collection - Movies explaining the Earth's phenomena, such as day-night cycles and different seasons, Solar eclipses and the Moon phases.
3D TV - ability to connect device running iOS to 3D TV to play Solar Walk™ on a big screen.
AirPlay - ability to play Solar Walk™ on a big screen without any cables.
3D mode - ability to tour the Solar System in 3D mode using 3D stereo glasses.
Object info - by tapping the "**i"** icon you can learn general information about the planet, such as its name, mass, radius, distance to the sun, illustrated internal structure and science missions.
Time Machine - tap the screen of your device to see the date and time. Drag **Time slider** with your finger and the planets will start moving accordingly. Touch year, month, time and change them depending on whatever you want to see. The display will adapt accordingly to show you how planets were aligned at that time.
Sharing - tap the **Sharing** icon to get a screenshot for sharing it via Twitter, Facebook or e-mail, save it to your Camera roll or print it. Also users will be able to Rate or Gift Solar Walk™ through AppStore.
Bookmarks - allows users to take virtual preset tours over the Universe.
Planets' moons - select a planet like the Earth, Saturn, Jupiter or Mars to observe their moons tracking around the planet.
Satellites - follow the trajectories of the most interesting satellites of the Earth.
Search - tap the **Search** icon and start typing the name of the object you are interested in. The app will suggest you results including letter combinations.

Solar Walk™ is currently available in the following languages: Spanish, French, German, Japanese, Italian, Russian, Korean, Simple and Traditional Chinese.
The application is compatible with iPhone, iPod touch, iPad, requires iOS 4.3 or later (iOS 4.0 Tested) and OS X (see full specifications below).
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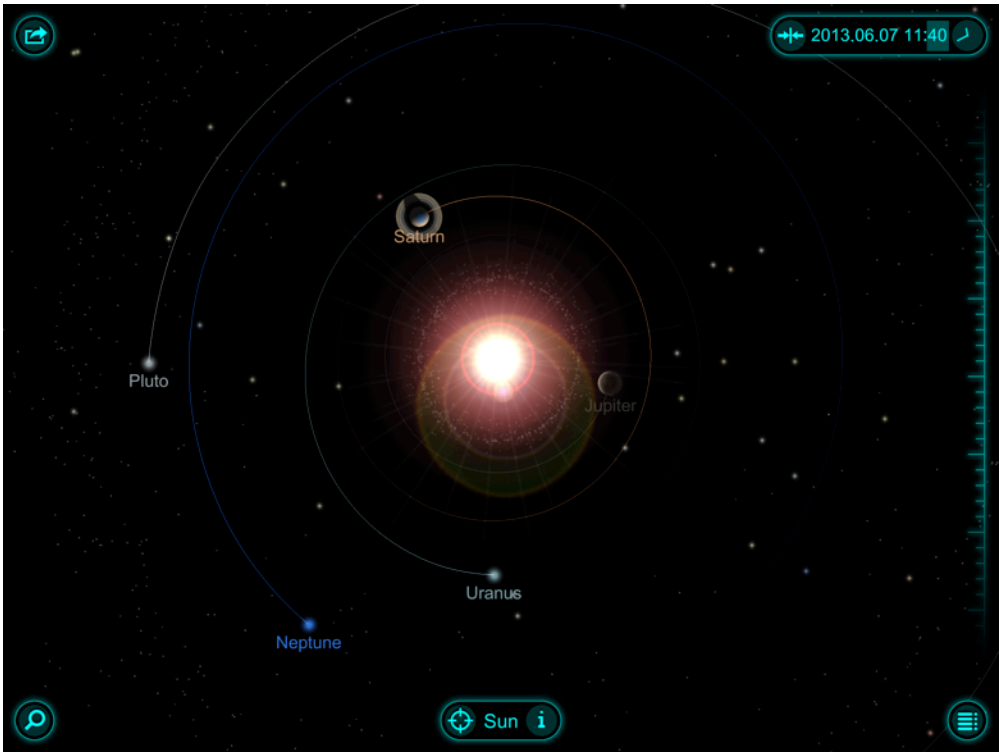
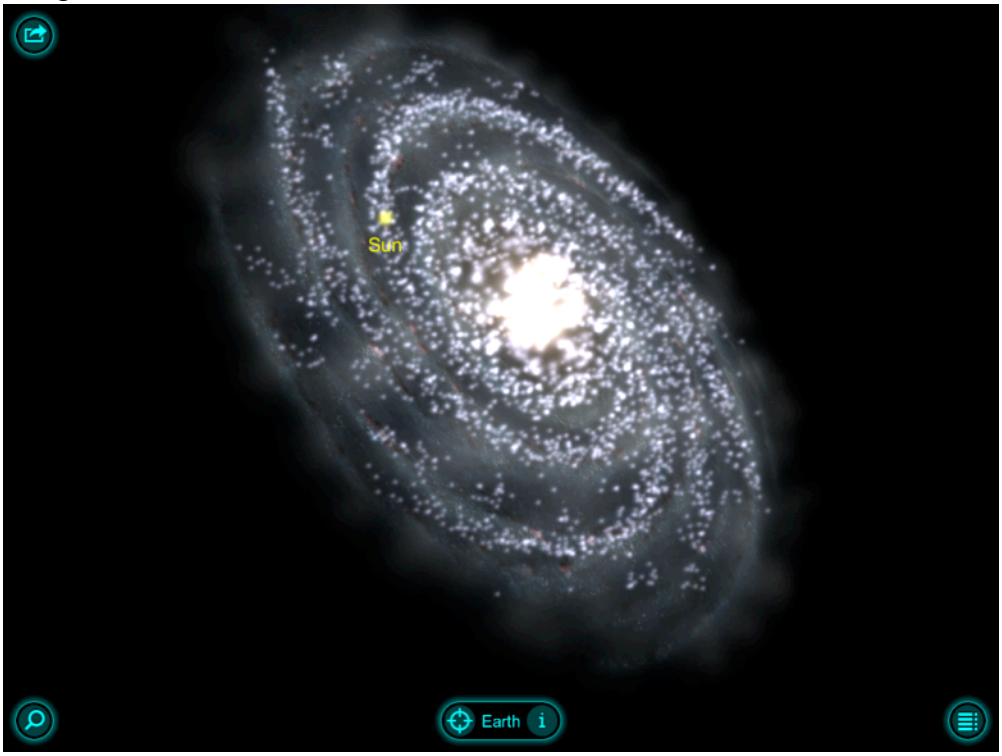
2. Getting Started

As you open the app you get a virtual tour to the Earth by default. To see entire Solar System there are two options: True-to-scale or Orrery view. In true-to-scale view all planets are shown in corresponding scale. Orrery view illustrates the relative positions and motions of planets and moons in the Solar system.



You can also discover the entire Milky Way Galaxy and find the place of the Solar System there by finger-spreading.



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2.1. Interface

Icon	Icon name	Function
	Sharing	Allows you to take a screenshot, share it on Facebook, Twitter, or e-mail it. Also lets you rate or gift the app through AppStore
	Search	Allows you to start typing the name of the object you are interested in. The app will suggest you results including letter combinations.
	Fly to a planet	Allows approaching a selected planet.
	Information	Gives detailed information and images about the selected object in a drop-down box. The **"i"** button brings you closer to the object with the time pausing. To go back to the Solar System you can tap **"x"** button or just touch screen anywhere.
	Menu	Helps you navigate the menu. It contains Orrery/True-ti-scale options, Shop, Extras, Settings and Help buttons.
	Orrery	The distances between the planets are shorter with the bigger planets' sizes (the planets' proportions and distances are not observed in this mode).
	True-to-scale	Shows all planets in corresponding scale.
	Shop	Allows you to purchase additional options such as movies and high resolution surface views.
	Extras	Contains movies, bookmarks and missions.
	Settings	Allows turning on/off the music and sounds, and switching between view modes.
	Help	Contains video tutorial, subscription, support and contacts sections.
	Time Machine	Shows/hides **Time Machine** and **Time Slider.** To see the current time, date, and year, tap .
	Close	Allows exiting the **Solar System mode** or leave information box.

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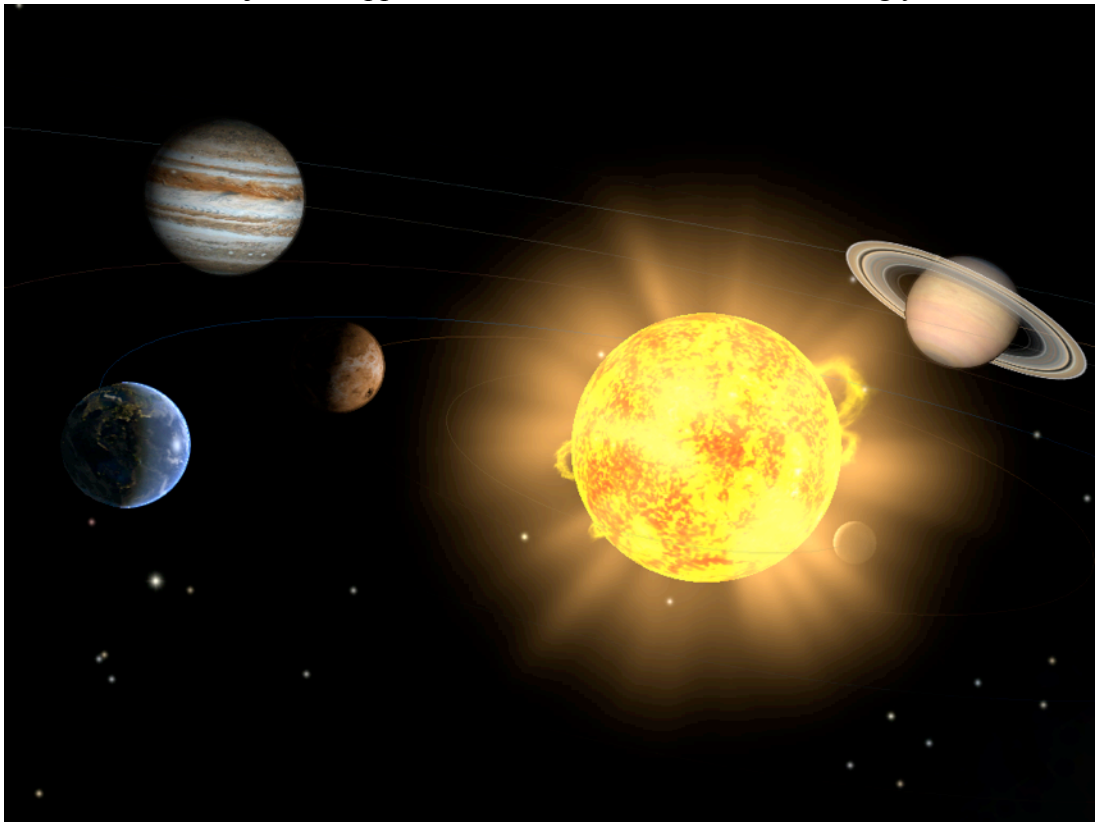
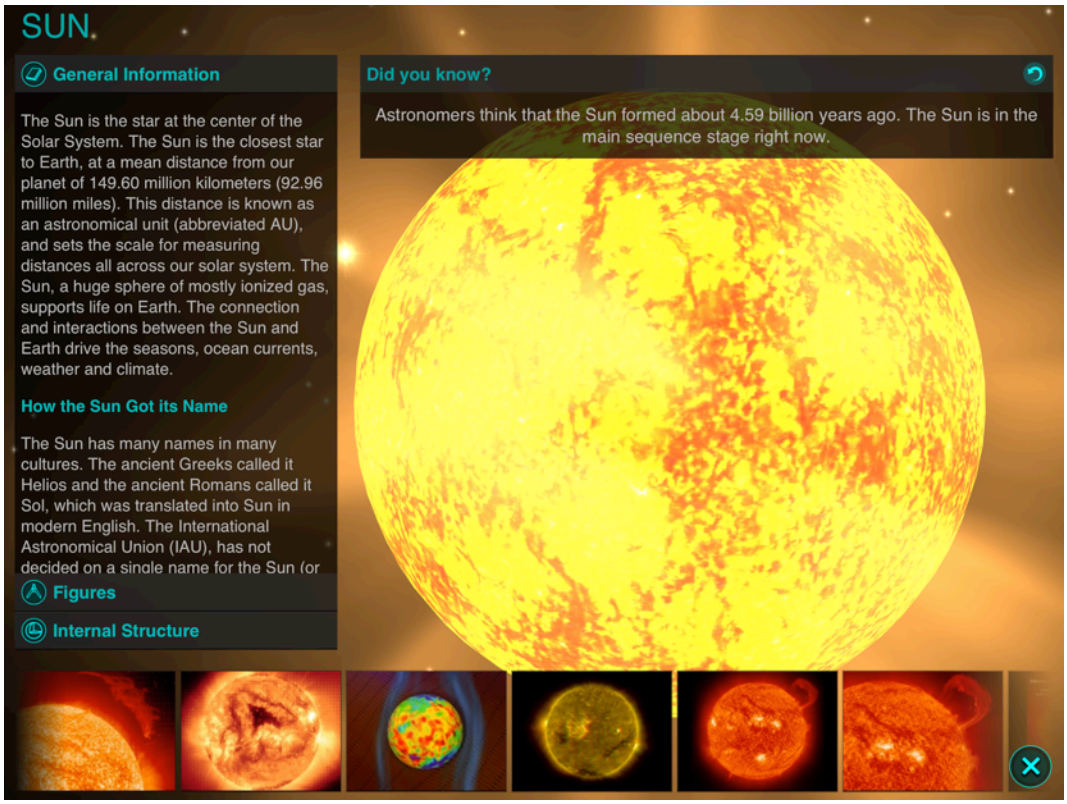
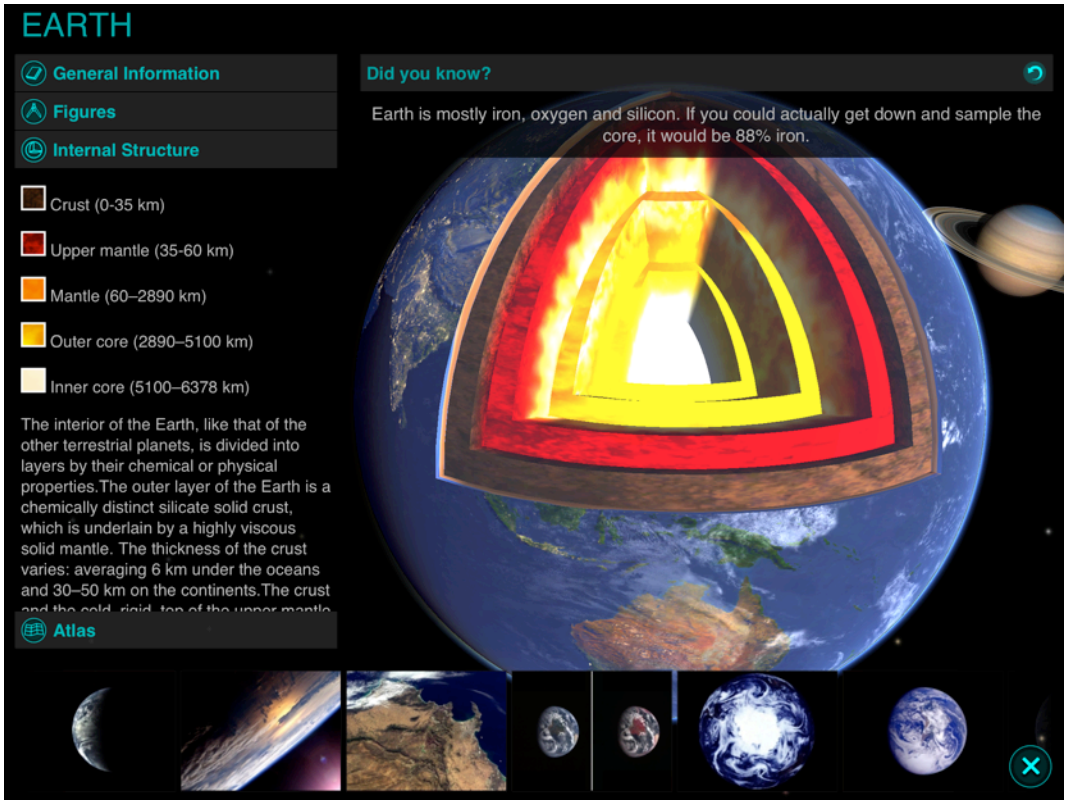
3. Navigating Through Space

Solar Walk™ has 98 celestial objects to choose from: these are all major planets, their moons, artificial satellites, asteroids, comets, dwarf planets, and brightest stars. All objects are labeled. The names of all unselected objects disappear after a few seconds of not touching your device.



You can zoom in/out any on object and get interesting information on all the objects, like internal structure, size, mass, scientific missions and more, by tapping “i” icon next to object’s name.


SUN
General Information
The Sun is the star at the center of the Solar System. The Sun is the closest star to Earth, at a mean distance from our planet of 149.60 million kilometers (92.96 million miles). This distance is known as an astronomical unit (abbreviated AU), and sets the scale for measuring distances all across our solar system. The Sun, a huge sphere of mostly ionized gas, supports life on Earth. The connection and interactions between the Sun and Earth drive the seasons, ocean currents, weather and climate.
How the Sun Got its Name
The Sun has many names in many cultures. The ancient Greeks called it Helios and the ancient Romans called it Sol, which was translated into Sun in modern English. The International Astronomical Union (IAU), has not decided on a single name for the Sun (or
Figures
Internal Structure
Did you know?
Astronomers think that the Sun formed about 4.59 billion years ago. The Sun is in the main sequence stage right now.


EARTH
General Information
Figures
Internal Structure
Crust (0-35 km)
Upper mantle (35-60 km)
Mantle (60–2890 km)
Outer core (2890–5100 km)
Inner core (5100–6378 km)
The interior of the Earth, like that of the other terrestrial planets, is divided into layers by their chemical or physical properties.The outer layer of the Earth is a chemically distinct silicate solid crust, which is underlain by a highly viscous solid mantle. The thickness of the crust varies: averaging 6 km under the oceans and 30–50 km on the continents.The crust
Atlas
Did you know?
Earth is mostly iron, oxygen and silicon. If you could actually get down and sample the core, it would be 88% iron.

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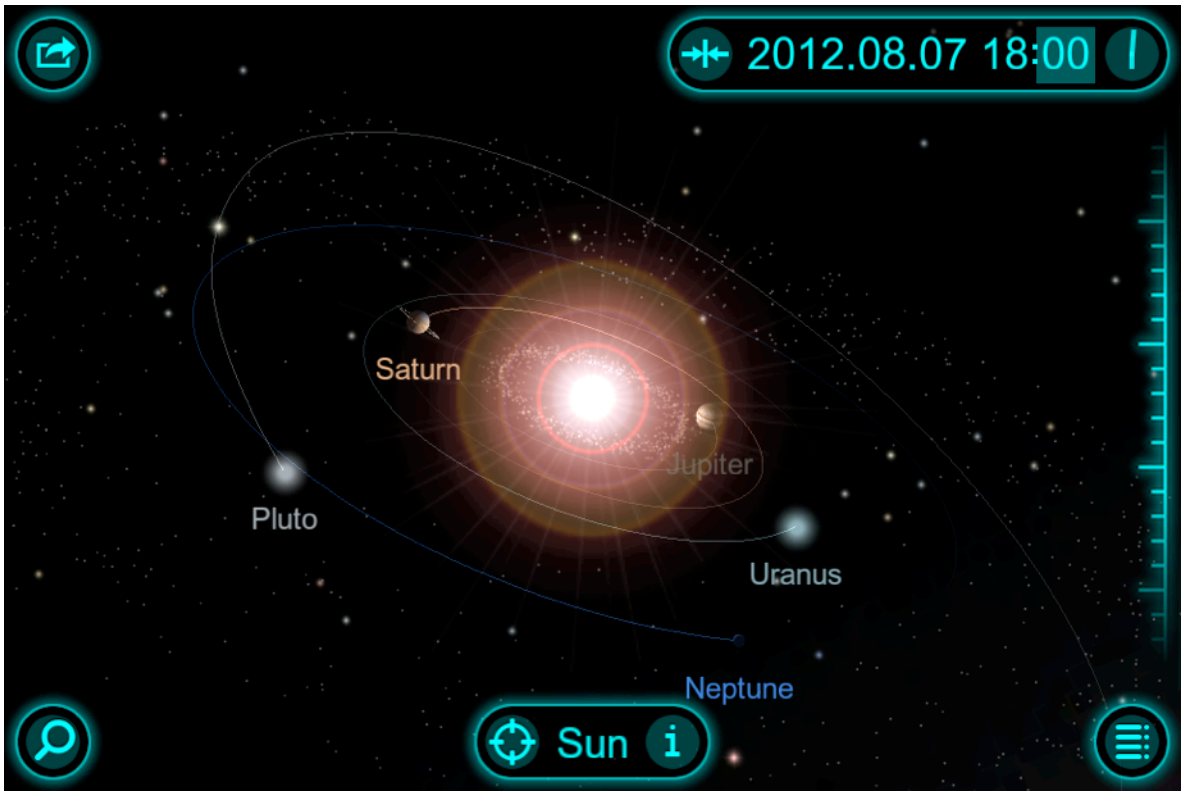
4. Navigating Through Time

Solar Walk™ lets you go forward or backward in time using the **Time Machine** feature placed in the upper right corner of the screen. There are 5 options to change (year, month, date, hour, and minute). You can set time and then take a look (by using pinch-zoom, finger-dragging and object-selection) how the Solar System moves at whatever speed you have chosen. If you want to change time again, choose another unit in the clock and then swipe/drag up or down the **Time slider**. To stop **Time Machine** touch **Time slider**. If you want to go back to the present, touch the icon before year.



With time speeds up, objects with the smallest orbits will be the first objects that move too fast to see, and they will appear to be missing, the planets with larger orbits will be the next to vanish. Even chosen object will disappear soon if the time continues to speed up.

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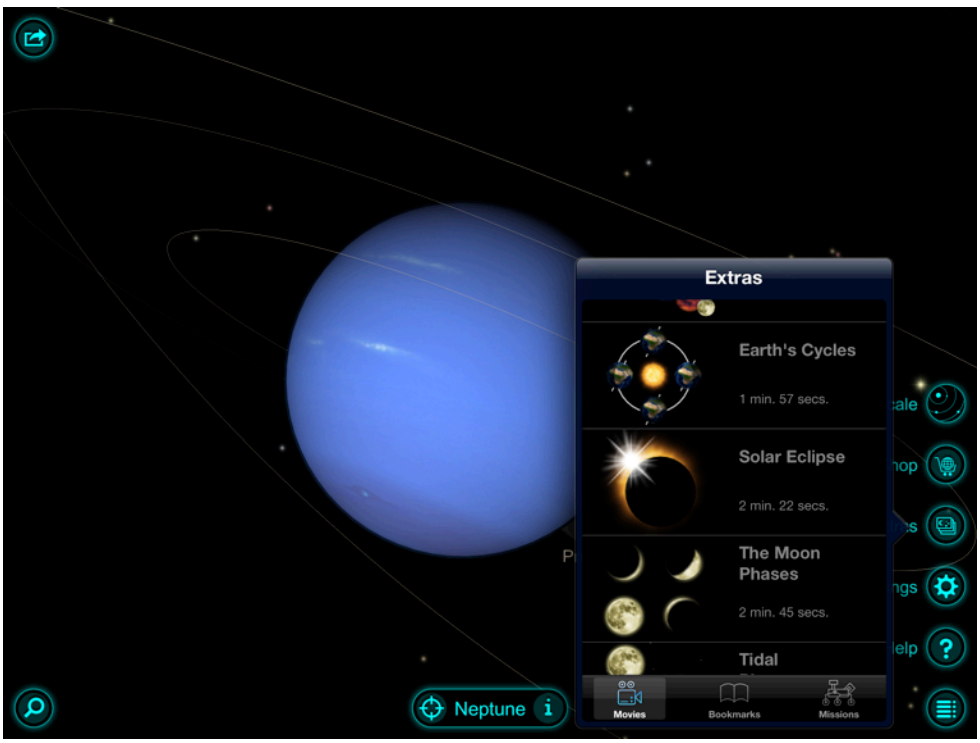
5. Extras

Along with navigating through time you are now allowed to take virtual preset tours, we added to Solar Walk™ bookmark section. You can choose any from the list available now, such as viewing sunset from the ISS or Hubble.

Besides, you can explore Movies section to learn about Solar Eclipse, the Moon Phases and much more.



Missions section which are available as In-App Purchases contains movies about artificial satellites such as Hubble, Apollo 17, etc.

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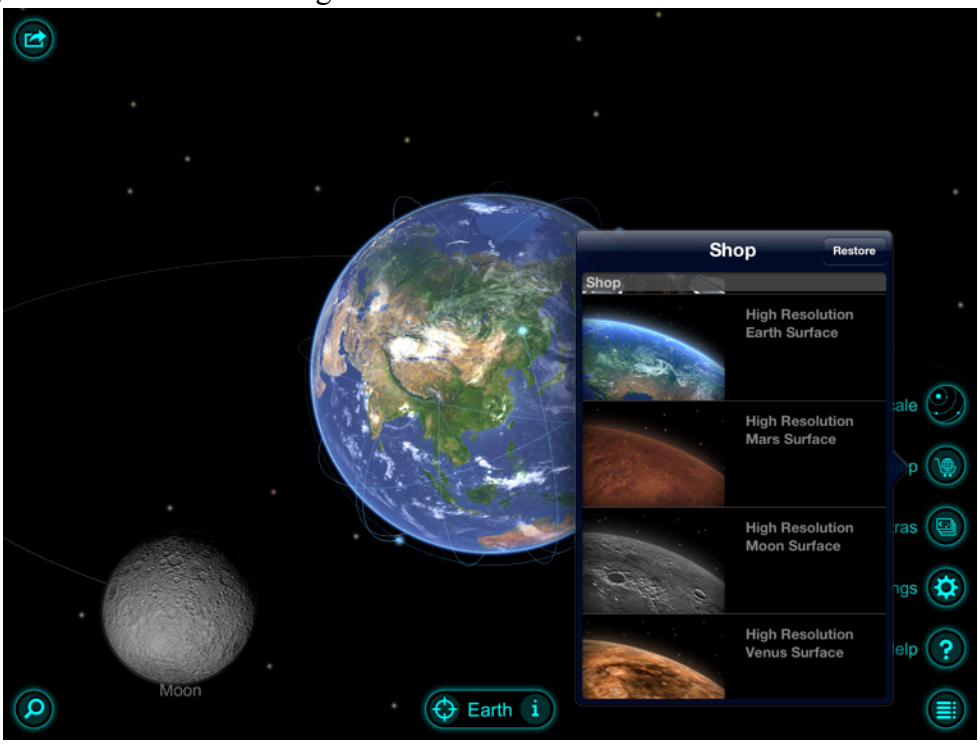
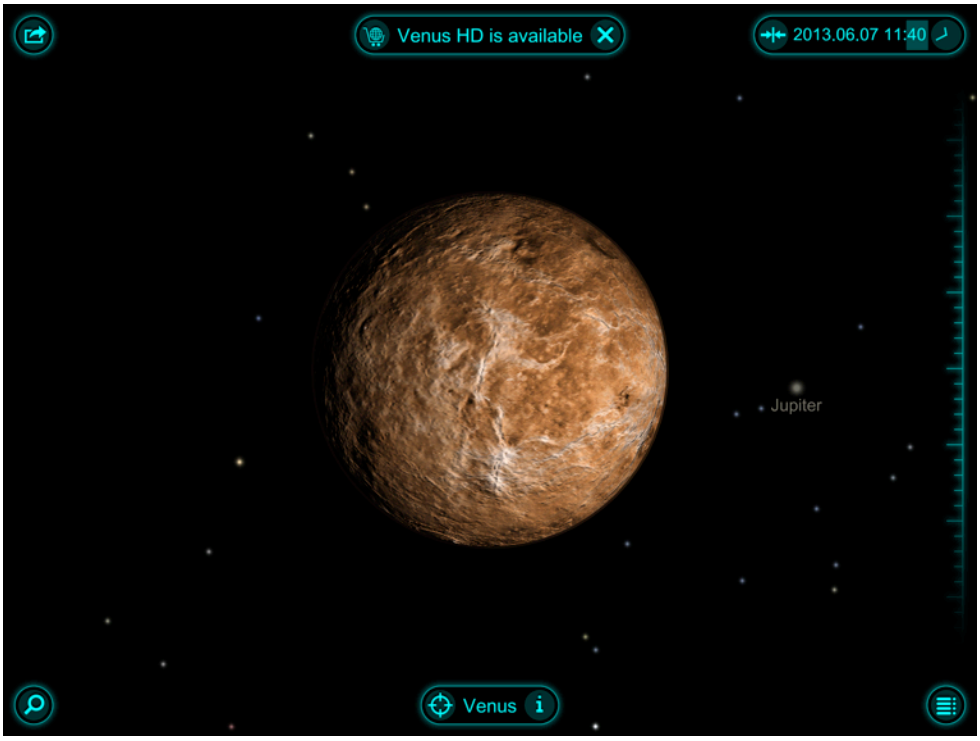
6. Shop

There are some options which are added to Solar Walk™ as In-App Purchases.
You can easily download high resolution surface textures of the Earth, the Moon, Mars and Venus that will allow you to explore the planets in amazing detail. The first way to download high resolution surfaces is to open “Shop” section and choose what planet you would like to have a good look at. The second one is to click at pop-up placed in upper part of the screen when you choose the planet that you would like to have a good look at.





Other In-App Purchases include human-made spacecraft 3D models which come with all kinds of data about the object such as history, mass, “Did you know” section and other interesting details.

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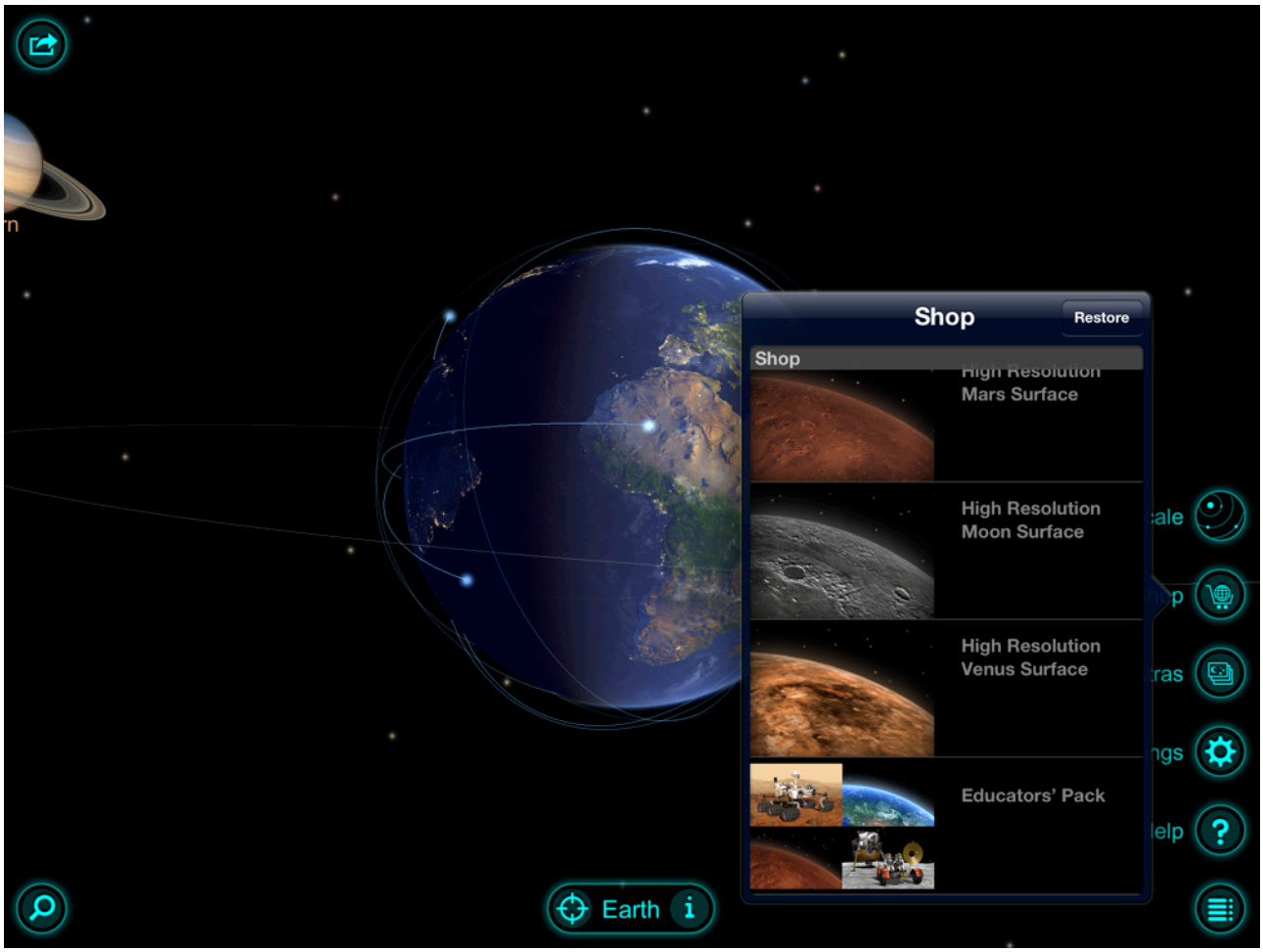
7. Solar Walk™ Educators Program

We are happy to invite educators (and everyone who involved at introducing astronomy to general public) to take part in our Solar Walk™ Educators Program. If you take our survey you will get a code that will let you download all Solar Walk™ in In-App Purchases for free.
Open “Shop” section to find “Educators’ Pack” and take the survey.



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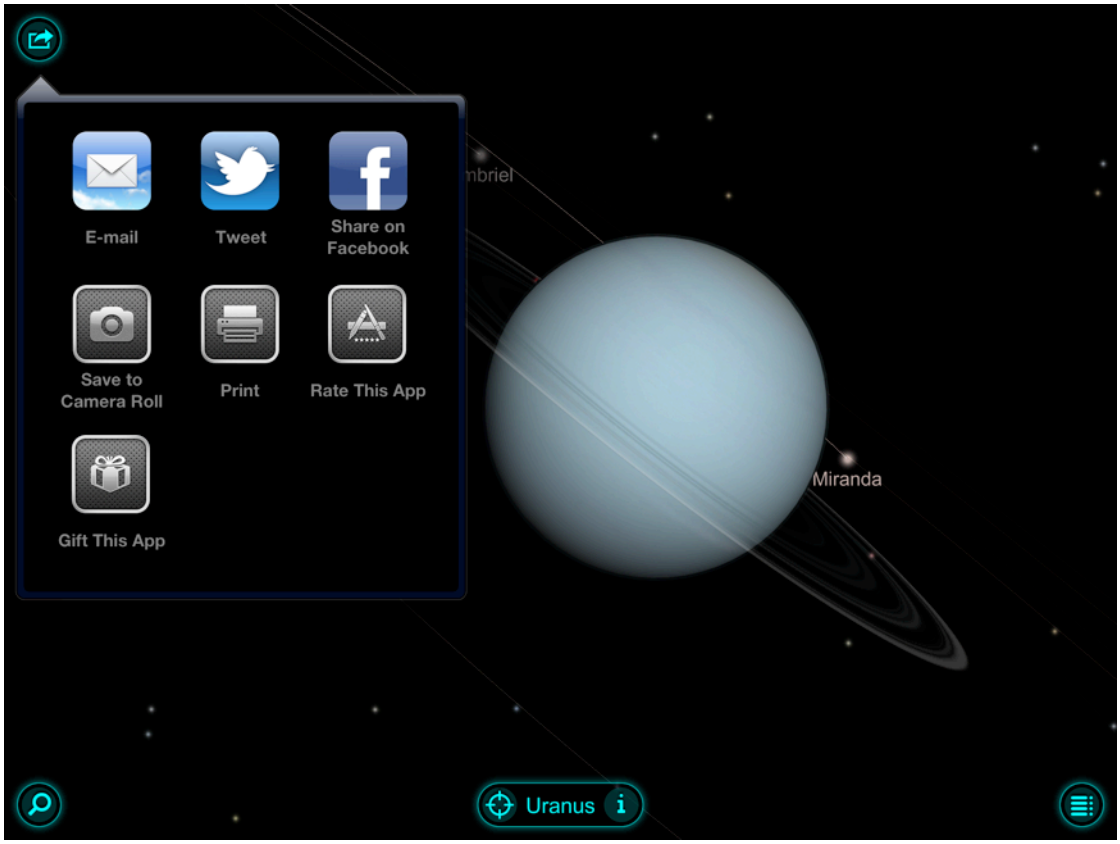
7. Sharing

You have an option to share beautiful pictures from Solar Walk™ with your friends though social networks. To get a screenshot tap the icon at upper left , you will see icons to share it via Facebook, Twitter, save it to your photos in camera roll album, or print it. Also you'll be able to Gift or Rate Solar Walk™ through AppStore.



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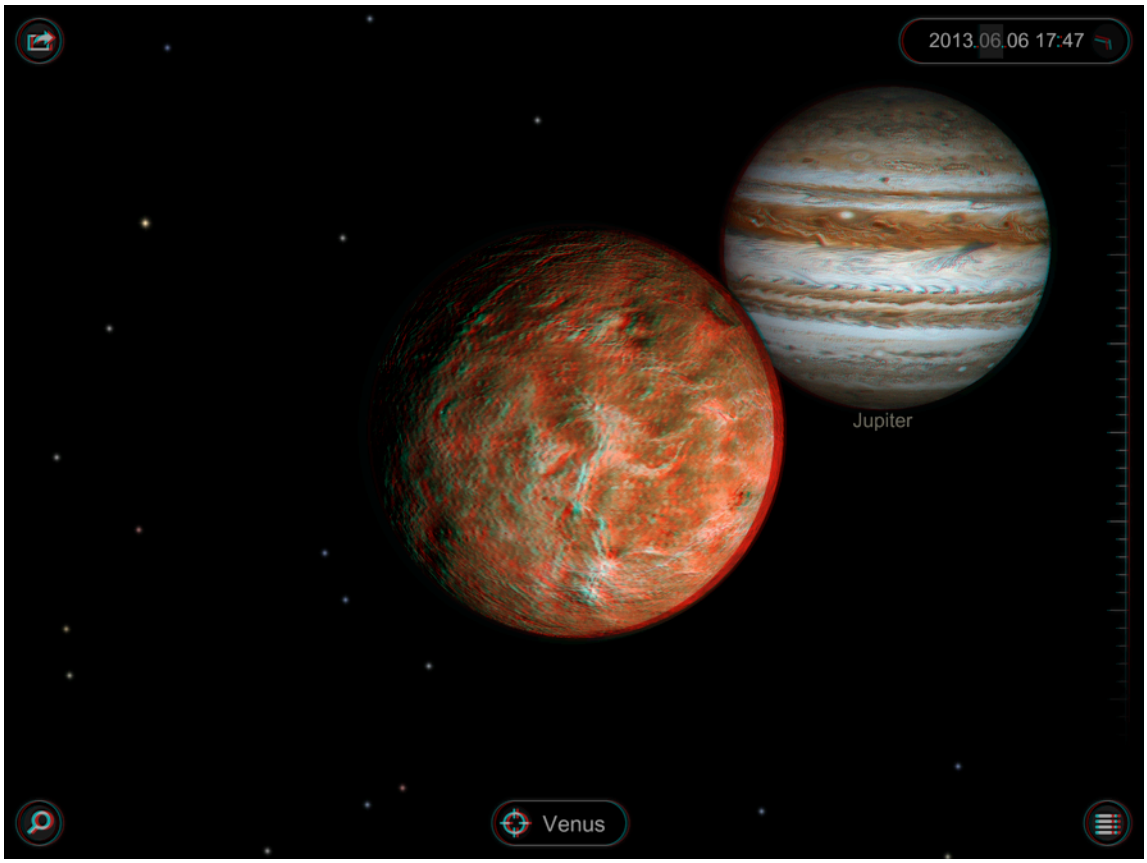
8. Switching to 3D Mode

Solar Walk™ has a 3D mode that allows you to nearly fly to the planets and view them in a more realistic way using special red/cyan 3D stereo glasses. 3D effect looks especially impressive with close-up views of rotating objects. See FAQ to read information on where to purchase glasses.



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9. Solar Walk™ for OS X

Solar Walk™ is available for OS X since launching Mac App Store. It can be navigated the same way as you do on any of your iOS devices.
At the bottom right there is a menu for switching to 3D mode, sending to movie collection, turning sounds on/off and the button to quit, also you can use the default combination cmd+Q to exit Solar Walk™.

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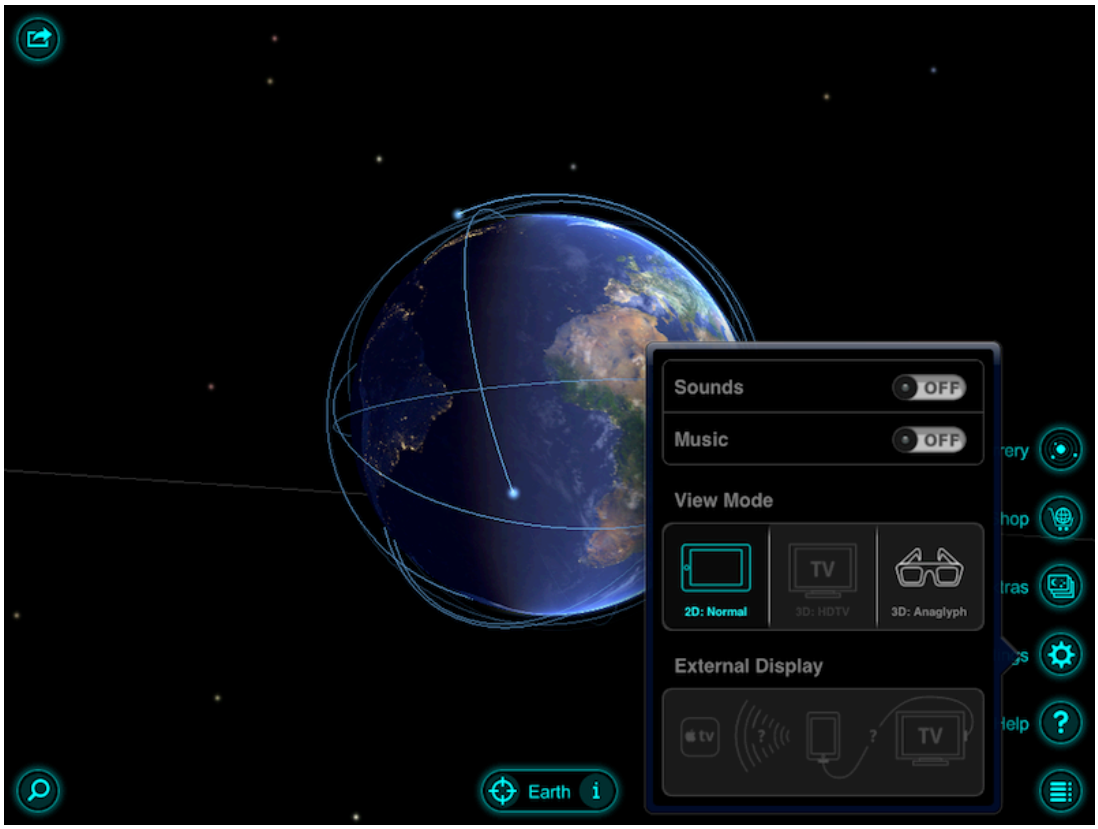
10.Solar Walk™ on a Big Screen

You are allowed to connect Solar Walk™ to 3D TV to get a real depth perception. Please use the instruction below.
1. Connect your device running iOS with an HDMI adapter to the 3D TV.
2. Switch on 3D function in Solar Walk™ Menu.
3. There will appear a question what type of 3D you want to use anaglyph glasses or 3D TV. Choose 3D TV.
4. On you 3D TV screen there will appear two pictures on a screen.
5. Switch 3D mode on a TV.
6. Put on 3D glasses and enjoy.

Also you can mirror Solar Walk™ on an external screen using AirPlay, which is available with iPad 2 or later; iPad mini; iPhone 4S; iPhone 5; iPod touch (5th generation); and iMac (Mid 2011 or newer), Mac mini (Mid 2011 or newer), MacBook Air (Mid 2011 or newer), and MacBook Pro (Early 2011 or newer) with Mountain Lion.

1. Turn on Apple TV.
2. Tap on device running iOS or OS X and select it from the list of available devices.
3. You are all set.



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11. The Apple Volume Purchase Program

Solar Walk™ participates in Apple's Volume Purchase Program, which means it is available to schools for bulk purchasing at a 50% discount.

It's quick and easy to set up school organization for volume purchasing.
1. Designate a person in the organization as the Program Manager.
2. Receive cards that are physically sent to the school. (Nothing is offered electronically.)

3. Sign up Program Facilitators, which will allow them to make purchases. Set up and manage your institution's list of Program Facilitators using the Program Facilitator account manager tool. Apple will create a new Apple ID for each Program Facilitator to use exclusively in the VPP Education Store. Existing Apple IDs cannot be used for the Volume Purchase Program. For each Program Facilitator, you will need to provide Apple with a valid email address that isn't currently used as an Apple ID. An institution can have as many Program Managers as it wants.
4. Log in to the Volume Purchase Program for Education with your new Apple ID. After login, you can redeem Volume Vouchers given to you by your Program Manager. You can also search for apps and books by name and purchase them in the quantity you need.

For any further questions, please visit Apple web-site.

FAQ

Question	Answer
How to view the entire Milky Way Galaxy?	Zoom out by spreading until it's possible.
How to view the entire Solar system?	Zoom in and out or use **Solar System mode**.
Are the stars on the sky behind painted or real?	The stars on the sky are accurately calculated and located in the exact position they actually are in reality.
How do I listen to my own music?	Unfortunately, Solar Walk™ does not have this feature yet. It is currently being developed.
What kind of 3D glasses do I need to view the 3D mode?	Anaglyph Red/Cyan are best for viewing Solar Walk™ app.
Where can I get 3D glasses?	To fully enjoy the 3D mode in Solar Walk™ app, you will need a pair of red/cyan 3D glasses. You can either get them online for free here http://www.rainbowsymphony.com/free-3d-glasses.html or make them yourself! Here is a couple of how-to links: http://www.youtube.com/watch?v=sIEn9z0oBE8, http://www.ehow.com/how_4455680_make-d-glasses.html

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12.Solar Walk™ Update History

Version 2.2
- New Space Missions: Apollo 17 with Lunar Rover Vehicle, The Launch of Hubble, Repair of Hubble. The missions are added as In-App Purchases.
- High resolution surface of the Earth, the Moon, Mars and Venus via In-App Purchase
- Bug fixes

Version 2.1
- Space Missions: Curiosity, Luna 17, Apollo 11. The missions are added as In-App Purchases that can be purchased for whatever you'd like to pay (including a free of charge option)
- Improved Atlas for Venus, Mars and the Moon
- Bug fixes

Version 2.0.1
- iPhone 5 Ready
- Added Curiosity model on Mars
- Added info about Curiosity in "Science Missions" of Mars
- New models and textures for Phobos and Deimos
- Bug fixes

Version 2.0
- Added "weight" to planets
- New info with more images from ESA and ESO
- Amazing internal structure of planets
- New objects: asteroids, comets, and dwarf planets
- Enhanced graphics for the Sun and the planets
- New multi-touch gesture allows two-finger swipe to move selected object off the central position. It can be used to create stunning images and to view the motion of planets from unusual angles.
- A list of preset flights through space to show you the most amazing views of the Milky Way

Version 1.9.3
-iPhone 4 interface bug fix
-App size reduced"
1.9.2 "Optimized for new iPad
-High resolution interface
-High resolution textures of the planets
-New visual effects"

Version 1.9.1
- "Frost" feature
- The Asteroid belt
- The Solar prominence
- The bug with 3D TV fixed

Version 1.9
- Voice-over for educational movies

- Localized subtitles for movies in Chinese, French, German, Italian, Japanese, Korean, Russian, Spanish
- Uranus rings
- The clouds textures of Venus
- New texture of Mercury
- Minor interface tweaks

Version 1.8
-3D TV support
-external TV Support
-3D models of 10 main satellites
-3 new educational movies and detailed Earth texture

Version 1.7
-search
-explanatory movies
-Twitter and Facebook sharing

Version 1.6
-LOCATIONS: the arrow directly shows your real-time location on the Earth.
-3D SOLAR SYSTEM: availability of stereo view to get an unique and impressive stereoscopic experience at absolutely different level.
-SATELLITES: 10 Earth satellites trajectories.
-GALAXY VIEW: expanded view of the Solar System and the Milky Way Galaxy.
-MOVIE: the 1st educational movie “Solar System Planets’ Size Comparison”.

Version 1.5
- Pluto

Version 1.2
- iPad version
- Phobos and Deimos"

Version 1.0
- 3D Solar System Model
- Fly to the planet
- Read info
- Time machine
- Moons of different planets